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horizontal strata of basalt. From these mountains northward towards Spokane River the surface is nearly level with a deep soil cover; but it is here and there cut by deep canyons, on whose sides the lava beds form dark cliff belts. The Snake River crosses the Blue Mountain uplift in a canyon 4,000 feet deep and fifteen miles broad. The Grande Ronde, rising in many branches in the same mountains, has excavated an intricate series of branching canyons. Here the spaces between the streams are no longer flat-topped remnants of the original plateau, but sharp-edged ridges, diversified with spires and pinnacles. This river has cut a meandering trench in the floor of a flat canyon three miles wide, indicating two partial cycles of erosion. Many special features suggest interesting physiographic problems: the gravel terraces of Snake River, that once enclosed lakes in tributary streams; the falls of the Palouse, apparently the result of recent diversion of the river to a new and shorter course to Snake River; the wandering behavior of the Walla Walla on an aggraded floor, calling for special legislation regarding its use in irrigating canals; the deep fine soil on the lava plains, here and there heaped in hills, like dunes, and everywhere producing great crops of wheat in an apparently desert region. Nothing is more remarkable than the remnants of the pre-lava topography, whether seen in such eminences as Steptoe butte, rising over the lavas and never buried, or revealed in Snake River canyon, where a magnificent 'shut in'\* occurs as the river cuts its superposed course through a deep-buried mountain of schist. Several excellent illustrations accompany the report.

#### HANDBOOK OF CANADA.

A HANDBOOK OF CANADA, published for the British Association meeting at Toronto

\*See SCIENCE, III., 1896, 661.

last summer by the Local Committee, contains an account of the physical features of the Dominion by G. M. Dawson, conveniently condensed for ready reference. Thus the interior plateau of the Cordilleran region, occupying an area of 100 by 500 miles between the Gold range on the east and the Canadian Coast range on the west, is described as a peneplain of Tertiary denudation, greatly modified by Miocene volcanic accumulations and by the excavation of valleys after elevation. Its true character as a table-land cannot be appreciated until rising high enough for the eye to range along its even sky lines. Unlike the forested mountains east and west, this plateau has a drier climate, and includes wide stretches of grass-covered hills and valleys, forming excellent cattle ranges. It appears to be correlated with the basin areas of Cordilleran region within the United States.

W. B. Dawson describes the Canadian survey of tides and currents; stating, among other things, that the current in Belle Isle strait is tidal, with a flow nearly equal in each direction. The accepted theory of a constant inward cold current is thus proved to be unfounded and misleading.

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#### CURRENT NOTES ON ANTHROPOLOGY.

##### THE ANCIENT MURMEX.

IN SCIENCE, April 16th, and later in No. 1, of the *Bulletin* of the Museum of the University of Pennsylvania, I announced the identification of the classical object usually called a 'bow-puller' with the *Murmex*, fastened to the fist in pugilistic contests. This identification met with general acceptance, but a few authorities of great weight, such as Sir John Evans and Professor E. S. Morse, offered against it the cogent objection that if the implement was so used, it could scarcely fail to be repre-

sented on some of the existing remains of classical art, and that none such, so far as they knew, could be adduced.

I am glad to supply this deficiency in my argument, and thus place my identification beyond question. When in Paris, in September, I examined the galleries of ancient art in the museums of the Louvre with this in mind, and was fortunate in finding a striking and beautiful example in point. It is No. 68 in the 'Salle des Caryatides,' and is labelled 'Athlete Vainqueur au Pugilat.' Each hand is wrapped in a cestus, and each is armed with a three-pointed *Murmex*, as accurately represented in the marble as this material allows. The statue is late Greek, from Rome, and the originals of the arms are now in Rome. No more conclusive evidence of my argument could be desired.

#### THE GODS OF THE MAYAS.

SERIOUS students of the Mayan archæology will receive with great satisfaction the revised edition of the essay by Dr. Paul Schellhas on the figures of the gods in the Mayan manuscripts (*Die Göttergestalten der Maya-handschriften*, pp. 34, Dresden, Richard Bertling, 1897). It first appeared in the *Zeitschrift für Ethnologie*, 1892, but the author justly considers that the progress in this line of research called for a revision of the text. He pursues the same method as before, designating the divinities by letters, and discussing their proposed identifications as questions still open. All the important attempts in that direction are referred to, and such value assigned to them as he believes they merit. The mythological animals in the Codices are also named and figured, and their possible significations explained. The essay is dedicated to Dr. E. Förstemann, and certainly no one could be found more worthy of such a tribute.

A colored reproduction of page 11 of the

Dresden Codex is given as the frontispiece, and a number of illustrations in the text render the descriptions clear to the reader.

#### ORIGIN AND IMPORT OF THE TOTEM.

THE institution of the Totem, or something equivalent to it, prevailed widely in savage conditions of life in both hemispheres. It has generally been considered to indicate kinship, either real or ceremonial. Miss Alice C. Fletcher, in her paper on 'The Import of the Totem,' read at the Detroit meeting, takes up the totemic bond as found among the Omahas, and argues that among them it was not primarily a tie of relationship, but a purely religious lien, which connected together individuals and groups who had received similar revelations from the gods. These joined in certain similar rites and formed societies devoted to special cults. In this manner the gentes and tribes came to be based on spiritual, not physical relationship. Although the origin was thus in one sense individual, it is recognized that a man of uncommon ability and fortune might impress the group who dwelt together with the power of his totem, that is, his vision, and this would naturally be sought after and found by his descendants. This would unite the physical and spiritual kinship.

The paper is quite original in thought and founded on close personal study of the savage mind, as is evident on every page.

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#### NOTES ON INORGANIC CHEMISTRY.

*Nature* for September 23d contains an account of the series of micro-photographs of polished and etched surfaces of alloys, which were exhibited by Mr. J. E. Stead at the last conversazione of the Royal Society. These photographs show in many alloys, imbedded in the eutectic or what was once the mother liquor, crystals of alloys of definite